

Date: Tuesday, 20/01/2009 2:39:51 PM  
User: Linda Lacelle

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services  
Job Number : 44964  
Estimate Number : 13734  
P.O. Number :  
This Issue : 20/01/2009 S.O. No. :  
Prsht Rev. : NC  
First Issue : / / Type : SMALL /MED FAB  
Previous Run :  
Written By :  
Checked & Approved By :  
Comment : Est Rev:A 09-01-19 as per prelim issue DD verified by:EC

Drawing Name : FWD HARDPOINT KIT  
Part Number : D412786013  
Drawing Number : D412-786-1 PRELIM  
Project Number : N/A  
Drawing Revision : PRELIM A  
Material :  
Due Date : 27/01/2009 Qty: 4 Um: Each

09.01.22  
POSITIVE RECALL  
SPIT 3

Additional Product

Job Number:



PRELIMINARY ISSUE

Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Photocopy bluefile & type labels per PPP D412-786-013 CHG001 N/A

2.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

3.0 53870041 Hardpoint, Fwd LH



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Hardpoint, Fwd LH

batch: B44960

4.0 53870042 Hardpoint, Fwd RH



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Hardpoint, Fwd RH

batch: 44960

5.0 53870043 Mount, Fwd Upper



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Mount, Fwd Upper

batch: B44961

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD HARDPOINT KIT

Job Number: 44964

Part Number: D412786013

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

D38711

Doubler



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Doubler

batch: B44963

7.0

D38712

Doubler



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Doubler

batch: B44963

8.0

MS21042L3

Nut



Comment: Qty.: 10.0000 Each(s)/Unit Total: 40.0000 Each(s)

Nut

batch: M109716 340 M1097986X

9.0

MS27039111

Screw



Comment: Qty.: 8.0000 Each(s)/Unit Total: 32.0000 Each(s)

Screw

batch: 9662

10.0

MS27039112

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Screw

batch: M100993

11.0

MS27039114

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Screw

batch: M10929

12.0

MS1149D0332J

Washer



Comment: Qty.: 10.0000 Each(s)/Unit Total: 40.0000 Each(s)

Washer

batch: M140625

Date: Tuesday, 20/01/2009 2:39:51 PM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD HARDPOINT KIT

Job Number: 44964

Part Number: D412786013

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



APPROVAL



Comment: INSPECT 100% KITS FOR COMPLETENESS

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D412-786-013

Location:

PPP Rev:

44949

9/7/02

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



POSITIVE RECALL

EFFECTIVE 8/24/02

RELEASED

DATE 09/04/2002

MF 09-04-2002

PRELIMINARY

# PROTOTYPE REQUEST FORM

DART Aerospace Ltd.

Product #: D412-786

Job # ~~00276~~

Date: 09.01.15

Product Name: Blade Folding Kit Provisions

Requested By: HS

Design Manager Approval: [Signature]

44949

11556

Quantity	Part Number	Category	Description	Drawing Date	Material Cert Req'd?	Due Date	Comments	Date Completed
1	D412-786-011		Blade Folding Kit Provisions					
1	[D3866-041 ]		Tailboom Mount					
1	[D3866-1 ]		Mount PLATE					
2	[D3868-1 ]		Spacer					
1	[D3866-043 ]		Tailboom Mount					
1	[D3866-3 ]		Mount PLATE					
1	[D3868-3 ]		Spacer					
1	[D3868-5 ]		Spacer					

PRELIM

~~PROTOTYPE~~ REQUEST FORM

DART Aerospace Ltd.

Product #: D412-786

Job #: 00275

Date: 09.01.15

Product Name: Blade Folding Kit Provisions

Requested By: HS

Design Manager Approval: [Signature]

Quantity	Part Number	Category	Description	Drawing Date	Material Cert Req'd?	Due Date	Comments	Date Completed
1	D3870-041		FWD LH Hardpoint					
1	{D3870-1 }		Base					
1	{D3870-3 }		Rib					
1	D3870-042		FWD RH Hardpoint					
1	{D3870-1 }		Base					
1	{D3870-3 }		Rib					
1	D3870-5		FWD Upper Hardpoint MOUNT					
1	D3871-1		Doubler					
1	{D3871-2 }		Doubler					

PR21M

## PROTOTYPE REQUEST FORM

DART Aerospace Ltd.

Product #: D412-786

Job #: 00275

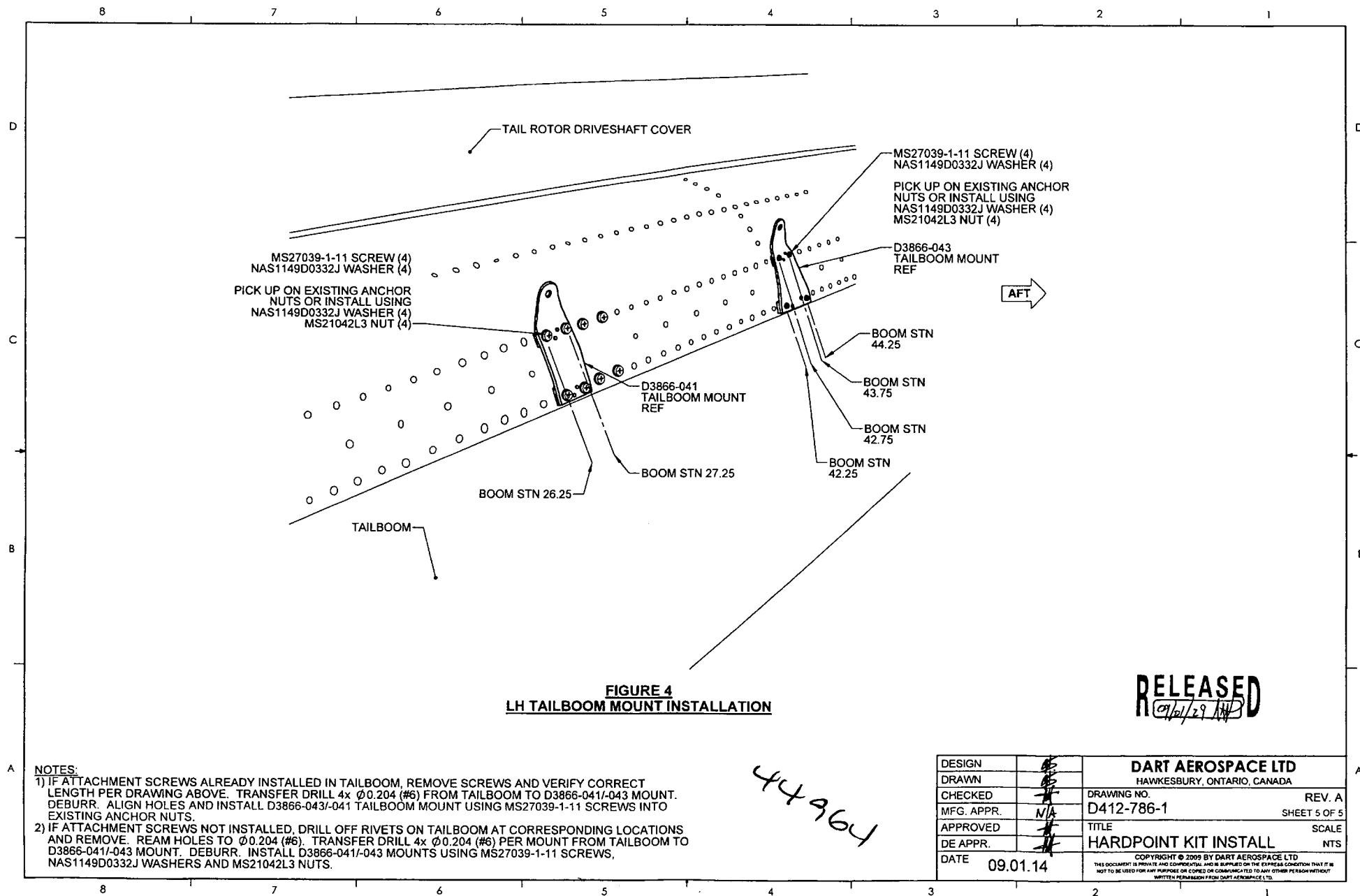
Date: 09.01.15

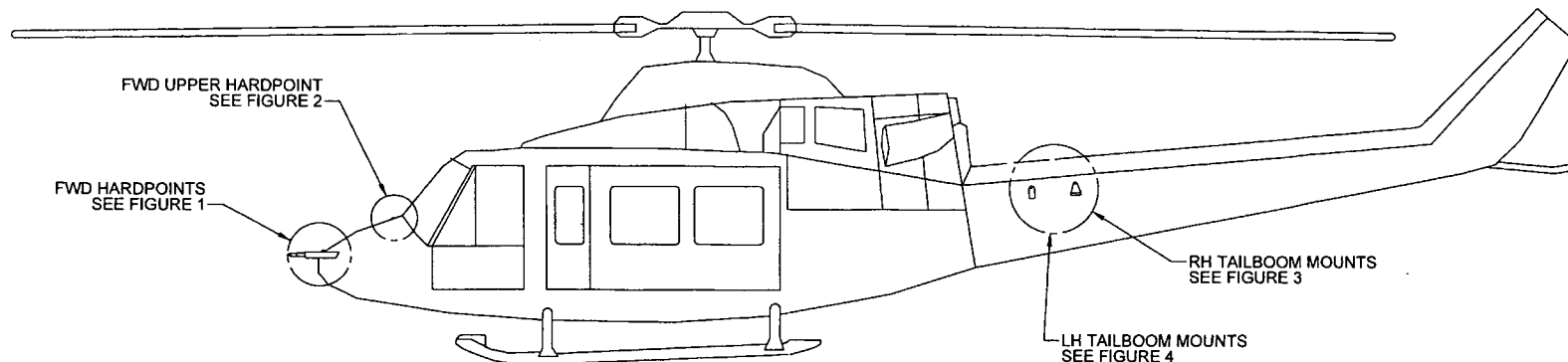
Product Name: Blade Folding Kit Provisions

Requested By: HS

Design Manager Approval: [Signature]

Quantity	Part Number	Category	Description	Drawing Date	Material Cert Req'd?	Due Date	Comments	Date Completed
22	MS21042L3	✓	Nut					
20	MS27039-1-11	✓	Screw					
1	MS27039-1-12	✓	Screw					
1	MS27039-1-14	✓	Screw					
34	NAS1149D0332J	✓	Washer					





### D412-786-011 HARDPOINT KIT

QTY -011	QTY -013	QTY -015	PART NUMBER	DESCRIPTION
X			D412-786-011	HARDPOINT KIT
1	X		D412-786-013	FWD HARDPOINT KIT
1		X	D412-786-015	TAILBOOM MOUNT KIT
		1	D3866-041	TAILBOOM MOUNT
		2	D3866-043	TAILBOOM MOUNT
	1		D3870-041	FWD LH HARDPOINT
	1		D3870-042	FWD RH HARDPOINT
	1		D3870-5	FWD UPPER HARDPOINT
	1		D3871-1	DOUBLER
	1		D3871-2	DOUBLER
	10	12	MS21042L3	NUT
	8	12	MS27039-1-11	SCREW
	1		MS27039-1-12	SCREW
	1		MS27039-1-14	SCREW
	10	24	NAS1149D0332J	WASHER

INSTALLATION	WEIGHT	LONGITUDINAL		LATERAL	
		ARM	MOMENT	ARM	MOMENT
D412-786-011 HARDPOINT KIT	0.58 LBS 0.22 KG	164.67 IN 4.18 M	95.51 IN 0.92 KG-M	-1.25 IN -0.03 M	-0.73 IN-LB -0.007 KG-M
D412-786-013 FWD HARDPOINT KIT	0.22 LBS 0.08 KG	-13.55 IN -0.34 M	-2.98 IN-LB 0.03 KG-M	2.36 IN 0.06 M	0.52 IN-LB 0.005 KG-M
D412-786-015 TAILBOOM MOUNT KIT	0.36 LBS 0.13 KG	273.58 IN 6.95 M	98.49 IN-LB 0.90 KG-M	-3.47 IN -0.09 M	-1.25 IN-LB -0.01 KG-M

RELEASED  
07/07/14

#### NOTES:

- 1) D412-786-011 HARDPOINT KIT REQUIRED ON 412/412EP AIRCRAFT UTILIZING D412-695-011 BLADE FOLDING KIT WHERE WIRE STRIKE COMPATABILITY IS REQUIRED
- 2) TOUCH UP DRILLED HOLES WITH ALODINE PER THE AIRCRAFT MAINTENANCE MANUAL
- 3) TORQUE FASTENERS AS FOLLOWS: 10-32; 20-25 IN-LBS
- 4) PRIME AND PAINT HARDPOINTS TO MATCH AIRCRAFT PAINT SCHEME PER AIRCRAFT MAINTENANCE MANUAL

A	NEW ISSUE	BY	09.01.14
REV	DESCRIPTION	DATE	
DESIGN			
DRAWN			
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MFG. APPR.	N/A		
APPROVED			
DE APPR.			
DATE	09.01.14		

**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA

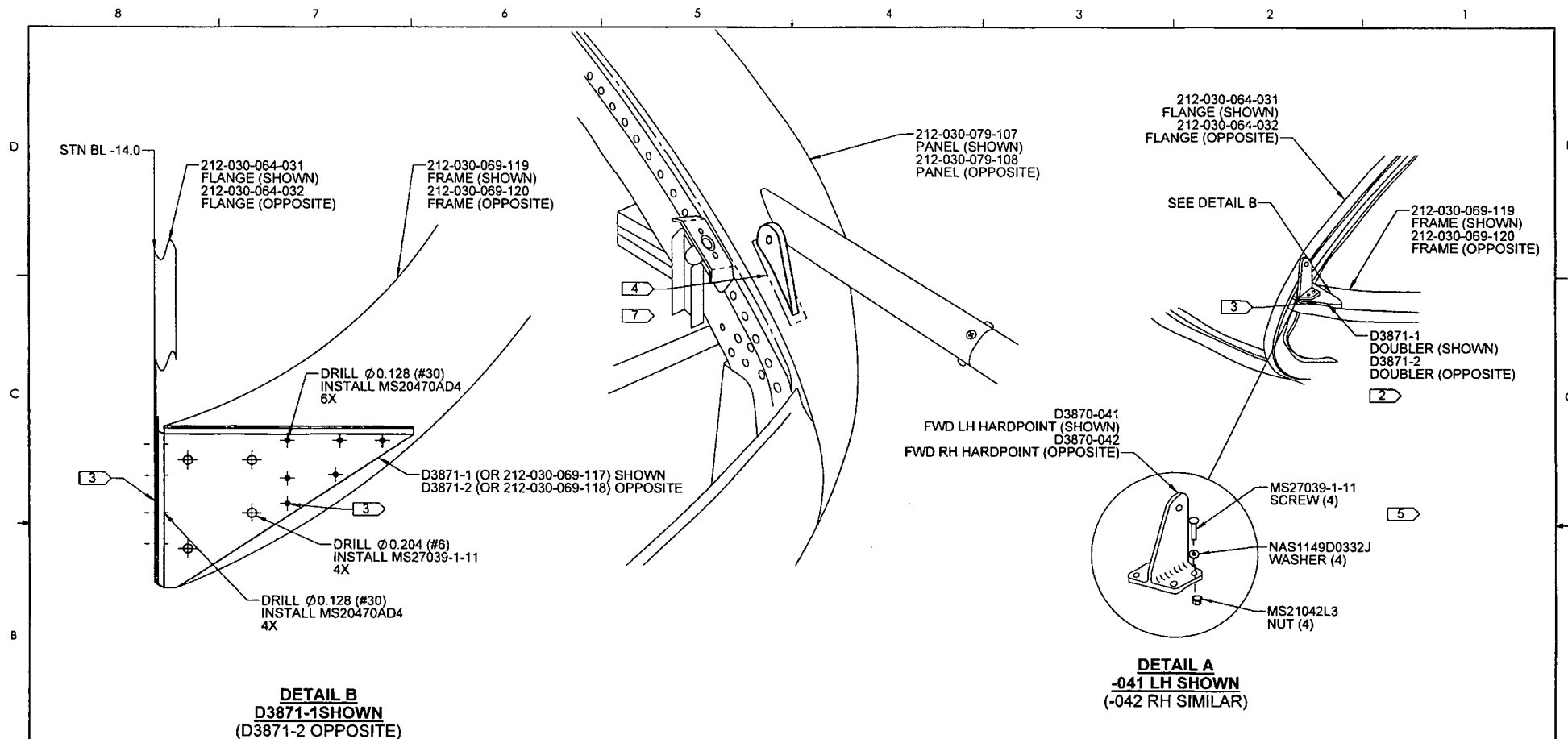
DRAWING NO. **D412-786-1** REV. A  
SHEET 1 OF 5

TITLE **HARDPOINT KIT INSTALL** SCALE NTS

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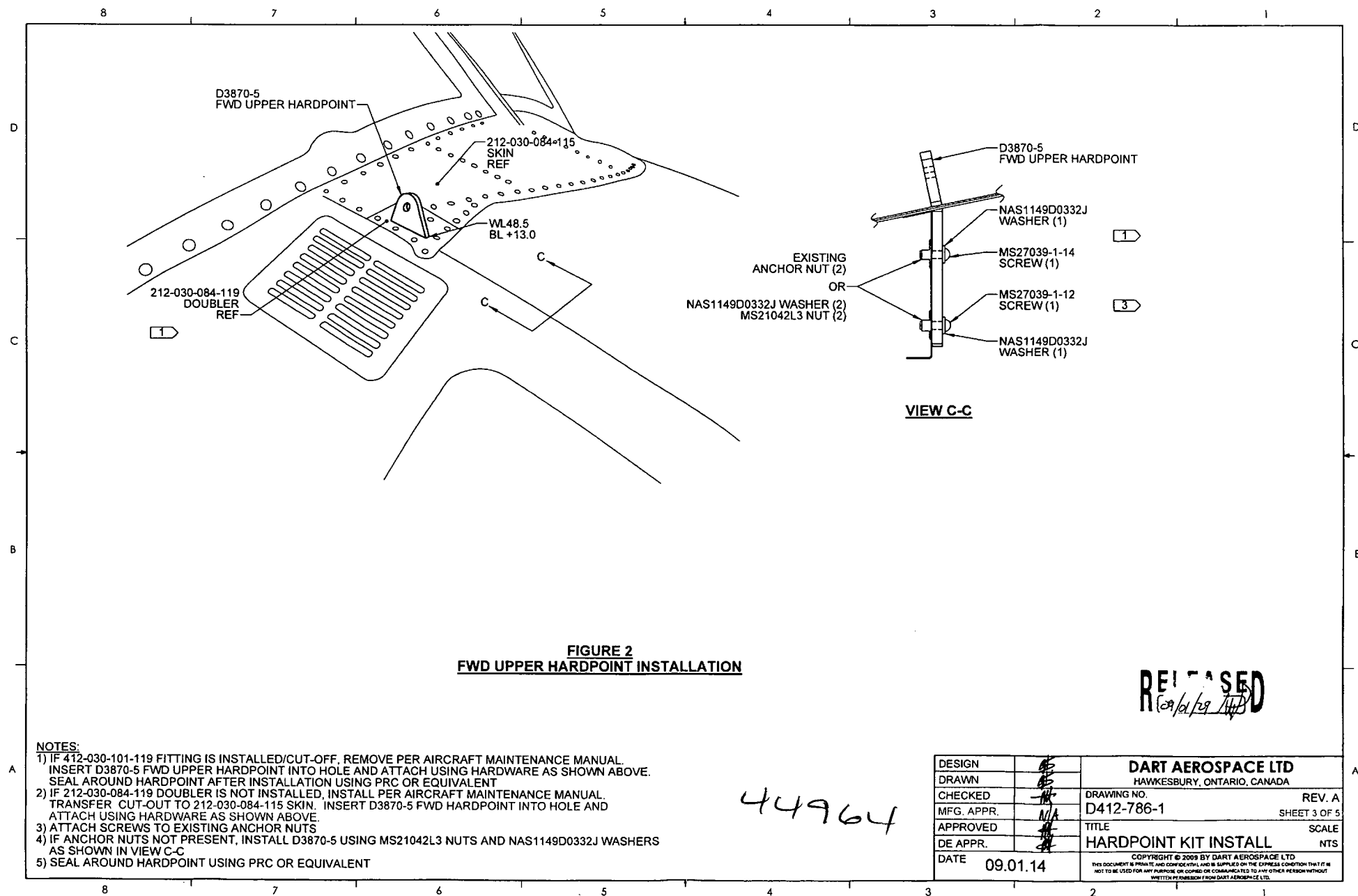
**FIGURE 1**  
**FWD HARDPOINT INSTALLATION**

**NOTES:**

- 1) IF 412-030-205-101/-102 FITTINGS HAVE BEEN INSTALLED/CUT-OFF, REMOVE AND REPAIR 212-030-079-107/-108 PANELS PER AIRCRAFT MAINTENANCE MANUAL
- 2) D3871-1/-2 DOUBLERS NOT REQUIRED IF 212-030-069-117 AND -118 DOUBLERS ALREADY INSTALLED, SEE STEP 4
- 3) IF 212-030-069-117/-118 DOUBLER(S) NOT INSTALLED, POSITION D3871-1/-2 DOUBLERS AS SHOWN IN DETAIL B AGAINST 212-030-064-031/-032 FLANGE. TRANSFER DRILL 6X  $\phi 0.128$  (#30) HOLES FROM D3871-1/-2 DOUBLER INTO 212-030-069-119/-120 FRAME. TRANSFER DRILL 4X  $\phi 0.204$  (#6) FROM D3871-1/-2 DOUBLERS TO 212-030-069-119/-120 FRAMES. TRANSFER DRILL 4X  $\phi 0.128$  (#30) FROM 212-030-064-031/-032 FLANGE INTO D3871-1/-2 DOUBLER. DEBURR AND INSTALL D3871-1/-2 DOUBLERS USING MS20470AD4 RIVETS
- 4) CUT SLOTTED HOLE IN 212-030-079-107/-108 PANEL FOR D3870-041/-042 MOUNT.
- 5) INSTALL D3870-041/-042 LH/RH HARDPOINTS USING MS27039-1-11 SCREWS AS SHOWN IN DETAIL 'A'
- 6) TO PROVIDE ACCESS TO HARDWARE, IT IS ACCEPTABLE TO INSTALL WITH NUT ON TOP OF D3870-041/-042 MOUNT IF REQUIRED
- 7) SEAL AROUND ENTIRE PROTRUSION WITH PRC OR EQUIVALENT (ALL EDGES)

**RELEASED**  
21/02/19 MJP

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MFG. APPR.	45	D412-786-1	SHEET 2 OF 5
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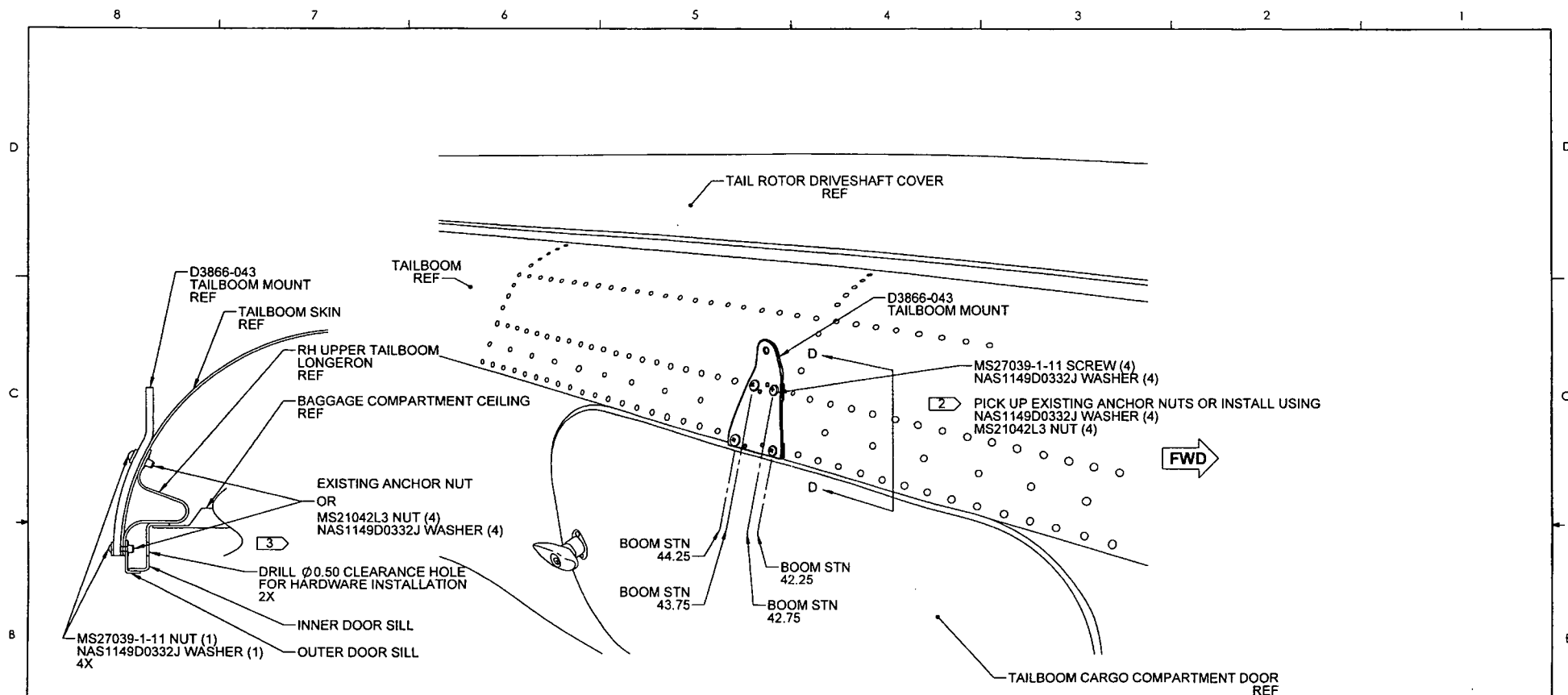
**FIGURE 2**  
**FWD UPPER HARDPOINT INSTALLATION**

**RELEASED**  
(29/01/14)

**NOTES:**

- 1) IF 412-030-101-119 FITTING IS INSTALLED/CUT-OFF. REMOVE PER AIRCRAFT MAINTENANCE MANUAL. INSERT D3870-5 FWD UPPER HARDPOINT INTO HOLE AND ATTACH USING HARDWARE AS SHOWN ABOVE. SEAL AROUND HARDPOINT AFTER INSTALLATION USING PRC OR EQUIVALENT
- 2) IF 212-030-084-119 DOUBLER IS NOT INSTALLED, INSTALL PER AIRCRAFT MAINTENANCE MANUAL. TRANSFER CUT-OUT TO 212-030-084-115 SKIN. INSERT D3870-5 FWD HARDPOINT INTO HOLE AND ATTACH USING HARDWARE AS SHOWN ABOVE.
- 3) ATTACH SCREWS TO EXISTING ANCHOR NUTS
- 4) IF ANCHOR NUTS NOT PRESENT, INSTALL D3870-5 USING MS21042L3 NUTS AND NAS1149D0332J WASHERS AS SHOWN IN VIEW C-C
- 5) SEAL AROUND HARDPOINT USING PRC OR EQUIVALENT

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MFG. APPR.	<i>N/A</i>	<b>D412-786-1</b>	SHEET 3 OF 5
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VIEW D-D

FIGURE 3  
LH TAILBOOM MOUNT INSTALLATION

RELEASED  
09/01/14

NOTES:

- 1) IF ATTACHMENT SCREWS ALREADY INSTALLED IN TAILBOOM, REMOVE SCREWS AND VERIFY CORRECT LENGTH PER DRAWING ABOVE. TRANSFER DRILL 4x  $\phi 0.204$  (#6) FROM TAILBOOM TO D3866-043 MOUNT. DEBURR. INSTALL D3866-043 TAILBOOM MOUNT USING MS27039-1-11 INTO EXISTING ANCHOR NUTS.
- 2) IF ATTACHMENT SCREWS NOT INSTALLED, DRILL OFF RIVETS ON TAILBOOM AT CORRESPONDING LOCATIONS AND REMOVE. REAM HOLES TO  $\phi 0.204$  (#6). TRANSFER DRILL 4x  $\phi 0.204$  (#6) FROM TAILBOOM TO D3866-043 MOUNT. DEBURR. INSTALL D3866-043 MOUNT USING MS27039-1-11 SCREWS, NAS1149D0332J WASHERS AND MS21042L3 NUTS.
- 3) TRANSFER DRILL LOWER HOLES TO INSIDE DOOR SILL AND REAM INSIDE DOOR SILL TO  $\phi 0.50$  TO PROVIDE ACCESS FOR NUTS AND WASHERS. SEE VIEW D-D.

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